

PRODUCT DESCRIPTION

- **Automatische Kalibrierung von Wechselstrom und Gleichstrom Messbrücken**
- **Hohe Genauigkeit - besser 0,01ppm bei 100Ohm**
- **Patentiertes Design**
- **Windowsanwendung zur vollständigen Analyse und Zertifikatserstellung**

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Resistance Bridge Calibrators RBC100A/M & RBC400A/M

Calibrate thermocouple bridges quickly, simply and in-house

- Calibrate as well as thermocouple bridges
- High accuracy - better than 0.01 ppm/°C 100 Ohms RBC 100A
- Patented design (patented from PHL)
- Windows application for full analysis and reporting

Operating principle

The problem: Temperature measurement is one of the most demanding applications in resistance measurement. It requires the measurement of resistance values to accuracies of 1 part in 10⁶ or better. While 20 resistance standards are sometimes available in this field, no resistance standards are generally not. So how can we achieve our bridge accuracy in the field, and that our resistance and temperature measurements are repeatable?

The invariety method

One simple method for checking a resistance bridge is to measure a pair of resistors separately, and then measure the two in series. Ideally, the series measurement should equal the sum of the two individual measurements. If not, then the measurements give us a level of information about the errors in the bridge readings. Note that we do not need to know the values of the resistors to make this test work.

The comparison method

Another check is to measure the ratio of two resistors, say R₁/R₂, then swap the leads and measure the reciprocal ratio (or comparison), R₂/R₁. Ideally, the product of the two measurements should equal 1.0 exactly. If not, the measurements give us more information on the bridge errors. Once again, we do not need to know the values of the resistors to make this test work.

The combinatorial method

The RBC employs the same principle as the invariety and comparison checks. It uses a set of five bridge lead terminals (which can be connected in 48 different ways) and variable resistors. By measuring each RBC combination in the test software you get with the comparison method up to 32 different measurements, not 16. Hence the RBC is used for almost identical values, we manage to 48 resistance measurements containing information about 48 errors in the bridge readings.

The combinatorial calculation method is particularly powerful. Besides it is not necessary to know the actual values of the four resistors, or their frequency dependence. This means we can calibrate any set of a bridge to any accuracy, as long as the various resistance combinations are accurate.

The patented RBC Calibrators are a result of research conducted by PHL at the Measurement Standards Laboratory of New Zealand, which operates under Industrial Research Ltd (IRL). Industrial Technology Group an exclusive licensee from PHL, is developing, sell and produce the RBC.

[Datenblatt RBC](#)

RESISTANCE BRIDGE CALIBRATORS MODELS RBC100M & RBC400M
User Maintenance Manual/Handbook

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The company is always willing to give technical advice and assistance where appropriate. Equally, because of the programme of continual development and improvement we reserve the right to amend or alter characteristics and design without prior notice. This publication is for information only.

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